Integrated Topside Design DSM Summary Brief

to 3rd ONR Ship Design Process Workshop

April 2009

What we did for 3rd Workshop

- Began with output from 2nd Workshop.
- Prior to 3rd Workshop, defined activities and dependencies in detail.
- Discussed observations and insights of and potential application of DSM.
- Experimented with changes to matrix and external dependencies.

ITD DSM

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Pl	Evaluate Ship Requirements	1	4%																						
Pl	Define ITD Management Plan	2	1	4%																					
Definition Clus	Define System Components	3	1	1	4%			1																	
	Collect Ship and System Information	4	1	1	1	4%																			
	Define Digital Product Models	5		1		1	4%																		
	Evaluate Low-fidelity Topside Arrangement	6		1		1		4%	1																
	Define Topside Arrangement	7		1			1	1	4%																
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Paral	Evaluate Topside Safety	10	1	1					1		1	4%													
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Conclusions

- The DSM Matrix represents the generic ITD process and provides a starting point for discussion.
- Three digit level process documentation is needed; a funded effort will produce results more rapidly.
- Individual naval engineers have unique experience due to process variability across different designs.
- Each activity requires WTA equivalent description (Scope, duration, mnhrs, material/contractor costs, deliverables, TWH)
- Iterative design process, overlapping activities, and levels of detail add to challenge of describing activities & dependencies.
- Estimates of elapsed time are difficult due to varied experience and assumptions.

Conclusions

- **Hypothetical Design process case is difficult to document because there are too many variables and unknowns.**
- **Assumptions are critical to process representation.**
  - First iteration of ITD within early PD
  - Traditional spiral design process (not set-based)
  - New Clean Sheet Design documented in LEAPS
    - Level of detail provided by prior design process
  - Cadence is undefined; 12 weeks?
- **Reviewing ITD independently; need to investigate interactions with other design functions (Machinery, Hull, etc).**
- **Good process modeling will show where new tools (CREATE) could expedite process and need for system specific criteria development.**

Conclusions

- **The ITD Team is not quite ready to fully endorse DSM for project planning.**
  - Further characterization needed to better understand value.
  - Implementation is not defined; how would DSM be rolled out?
  - Validation of process models needs to be discussed.
  - It took a room full of very experienced experts many hours to achieve a level of process definition viewed as incomplete.
    - New programs face same problem
    - How can engineers learn the process and be expected to execute with limited experience?